

א. סוג הבחינה: בגרות לבתי ספר על-יסודיים
ב. בגרות לנבחני משנה
ג. בגרות לנבחנים אקסטרניים
מועד הבחינה: חורף תשע"ד, 2014
מספר השאלון: 407,016108

אנגלית

שאלון ז' (MODULE G)

גרסה א'

הוראות לנבחן

- א. משך הבחינה: שעה וחצי
- ב. מבנה השאלון ומפתח ההערכה: בשאלון זה שני פרקים.
פרק ראשון – הבנת הנקרא – 60 נקודות
פרק שני – משימת כתיבה – 40 נקודות
סה"כ – 100 נקודות
- ג. חומר עזר מותר בשימוש: אחד מן המילונים שאישר אגף ספרי לימוד במשרד החינוך.
נבחן "עולה חדש" רשאי להשתמש גם במילון דו-לשוני: אנגלי-שפת-אמו / שפת-אמו-אנגלי.
השימוש במילון אחר טעון אישור הפיקוח על הוראת האנגלית.
- ד. הוראות מיוחדות:
- (1) עליך לכתוב את כל תשובותיך בגוף השאלון (במקומות המיועדים לכך).
 - (2) כתוב את כל תשובותיך באנגלית ובעט בלבד. אסור להשתמש בטיפקס.
 - (3) כתוב את הנוסח הסופי של מטלת הכתיבה בעמוד 7. אם תצטרך, תוכל להשתמש גם בעמוד 8.
 - (4) בתום הבחינה החזר את השאלון למשגיח.
- הערה: על כתיב שגוי יופחתו נקודות מהציון.
הערה: קישוריות לדוגמאות תשובה לשאלון זה תתפרסם בדף הראשי של אתר משרד החינוך.
- ההנחיות בשאלון זה מנוסחות בלשון זכר ומכוונות לנבחנות ולנבחנים כאחד.**

בהצלחה!

/המשך מעבר לדף/

PART I: ACCESS TO INFORMATION FROM WRITTEN TEXTS (60 points)

Read the article below and then answer questions 1-7.

BIOMIMICRY: DOING IT NATURE'S WAY

Artists and poets have always been inspired by the power and beauty of nature. Now scientists are taking a different kind of inspiration from the natural world. Researchers in the new field of biomimicry (from the Greek *bios*, meaning "life," and *mimesis*, meaning "imitation") are turning to nature in search of ideas that could lead to
5 technological innovations in a wide range of fields. The threads of a spider web, for example, are stronger than steel and more elastic than rubber. Studying their structure may make it possible to design better cables to hold up bridges, and better surgical threads for medical use.

Plants and animals have astonishing mechanisms for coping with the challenges
10 of their environment. Biomimicry, explains Dr. Ronald Kramer of Bloomtown University, is about studying these mechanisms and adapting them for human purposes. That, he says, is not easy at all. "The more you analyze biological systems, the more you realize how complex they are," he says. "But even if we can't fully understand them, we may be able to learn enough about the principles to adapt them
15 for our benefit."

One example of biomimicry can be found at the Eastgate Center, a large office building in Harare, the capital of Zimbabwe. The design of the building is based on the system of tunnels found in the huge mounds constructed by termites. These tunnels control the flow of air in the mound and keep it at a constant temperature for the millions of
20 insects inside. The same principle was applied at the Eastgate Center, ensuring that the building remains pleasantly cool all year with no need for air conditioners. In another energy-saving project, researchers are working on an artificial leaf that mimics the way plant leaves convert sunlight into energy. With the help of this device, it may eventually be possible to create a solar energy system that produces electricity at a
25 lower cost.

/המשך בעמוד 3/

Such innovations demonstrate the enormous potential of biomimicry. Concerns have been raised, however, that many opportunities might be missed because engineers are often unaware of the relevant research being done in biology. "When I have a design problem to solve, I naturally consult publications aimed specifically at people in my field," explains robotics expert Samantha Wellington. 30 "So even if a biologist has published a study of some plant or animal mechanism that may be useful for my work, I probably won't know about it."

AskNature, an online database of biological information, was set up to overcome precisely this difficulty. Using the website, an engineer can simply type a key term, 35 such as "locomotion," to get a description of mechanisms used by various animals to move around. By increasing engineers' access to information gathered by biologists, AskNature founder Dr. Julian Vincent hopes to ensure that more of nature's ingenious solutions are adapted to help solve human problems.

QUESTIONS (60 points)

Answer questions 1-7 in English according to the article. In questions 1, 2 and 6, circle the number of the correct answer. In the other questions, follow the instructions.

1. The example of the spider web is given to show (-). (lines 1-8)

- (i) how the scientific study of biomimicry began
- (ii) which animals scientists have studied
- (iii) what innovations scientists have made
- (iv) what benefits biomimicry may offer

(8 points)

2. What does Dr. Kramer explain? (lines 9-15)

- (i) Why biological systems are complex.
- (ii) How to study biological mechanisms.
- (iii) Why it is hard to understand biological systems.
- (iv) How biomimicry affects the environment.

(7 points)

/המשך בעמוד 4/

3. What information is given about both biomimicry projects mentioned in lines 16-25?

PUT A ✓ BY THE TWO CORRECT ANSWERS.

- i) Where they were developed.
- ii) What they are based on.
- iii) Why they are important to scientists.
- iv) Why they have been successful.
- v) How they have affected other projects.
- vi) What their purpose is.

(2×7=14 points)

4. From lines 26-32 we can understand how biologists can contribute to biomimicry. How may they have contributed to the Eastgate Center project? Base your answer on information in lines 16-21.

COMPLETE THE SENTENCE.

Biologists may have contributed by

.....

(8 points)

5. What is the problem that the AskNature website (lines 33-34) aims to solve? Base your answer on information in lines 26-32.

ANSWER:

(8 points)

6. What are we told about AskNature in lines 33-38?

- (i) How people learn about the website.
- (ii) How the website is used.
- (iii) How the website should be improved.
- (iv) How helpful the website has been.

(7 points)

7. COMPLETE THE SENTENCE.

Animal locomotion is mentioned in lines 33-38 as a subject that

.....

(8 points)

/המשך בעמוד 5/

PART II: WRITTEN PRESENTATION (40 points)

Write 120-140 words in English on the following topic.

8. A teen magazine has asked readers to write on the following topic:

Some people believe that external appearance may provide important information about a person. Do you agree or disagree with this view?

Write a passage for the magazine stating and explaining your opinion. You may also give examples.

בהצלחה!

Use this page and the next (nos. 5-6) for writing a rough draft.